



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Cheo *et al.*

Appl. No. 09/732,914

Filed: December 11, 2000

For: **Use of Multiple Recombination
Sites with Unique Specificity in
Recombinational Cloning**

Confirmation No. 2341

Art Unit: 1645

Examiner: To be assigned

Atty. Docket: 0942.5010002/RWE/BJD

Letter to PTO Draftsman: Submission of Formal Drawings

Commissioner for Patents
Washington, D.C. 20231

Sir:

In reply to the "Notice to File Missing Parts of Application--Filing Date Granted," dated March 6, 2001, submitted herewith are 34 sheets of formal drawings with Figures 1-13, 14A, 14B, 15, 16, 17A, 17B, 18, 19, 20A-F, 21A-C, 22A, 22B, 23, 24A, 24B, 24C, 25A-B, 26A, 26B, 27A, and 27B, corresponding to the informal drawings submitted with the above-captioned application. Identification of the drawings is provided in accordance with 37 C.F.R. § 1.84(c). Acknowledgment of the receipt, approval, and entry of these formal drawings into this application is respectfully requested.

It is not believed that an extension of time is required, other than any already provided herewith. However, if an extension of time is needed to prevent abandonment of the application, then such extension of time is hereby petitioned. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036. A duplicate copy of this Letter is enclosed.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

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Attorney for Applicants
Registration No. 42,473

Date: May 4, 2001

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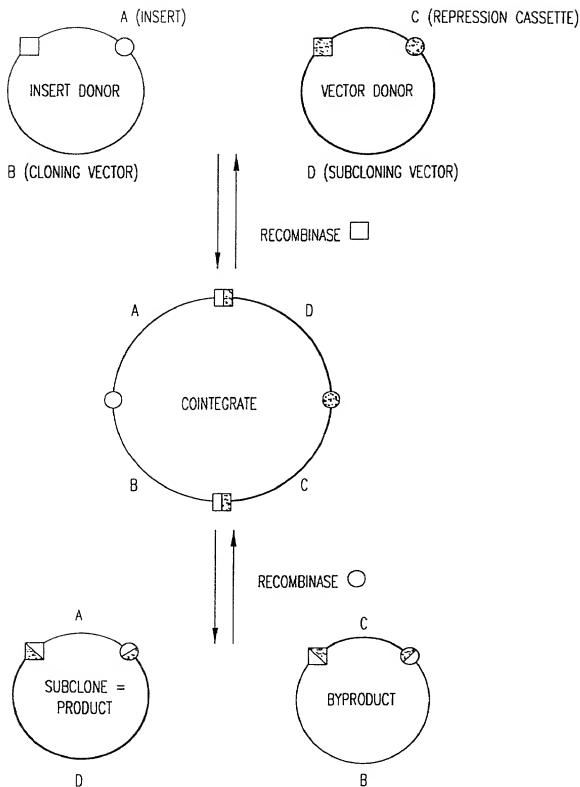


FIG.1

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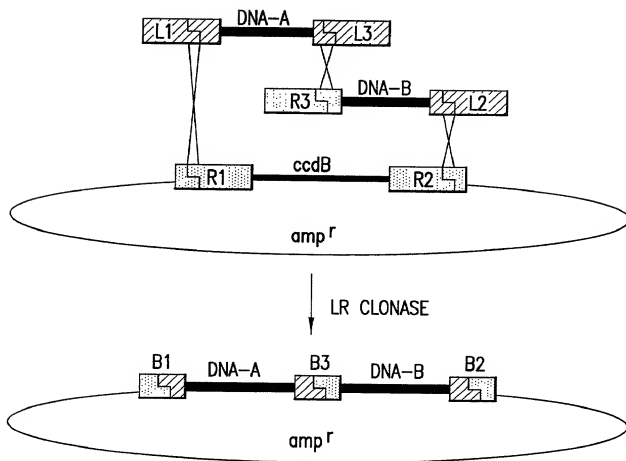


FIG.2

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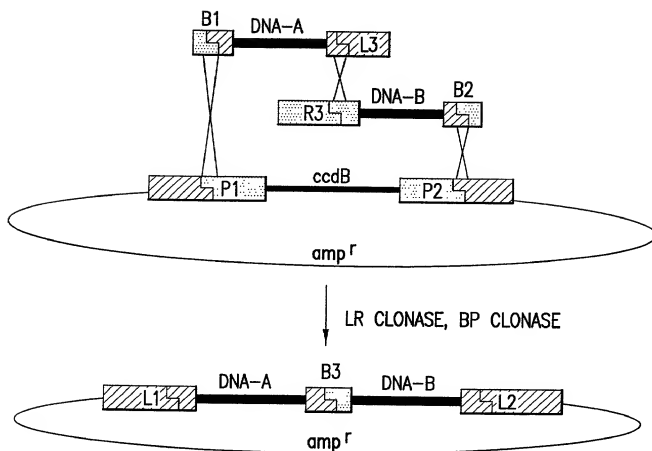


FIG.3

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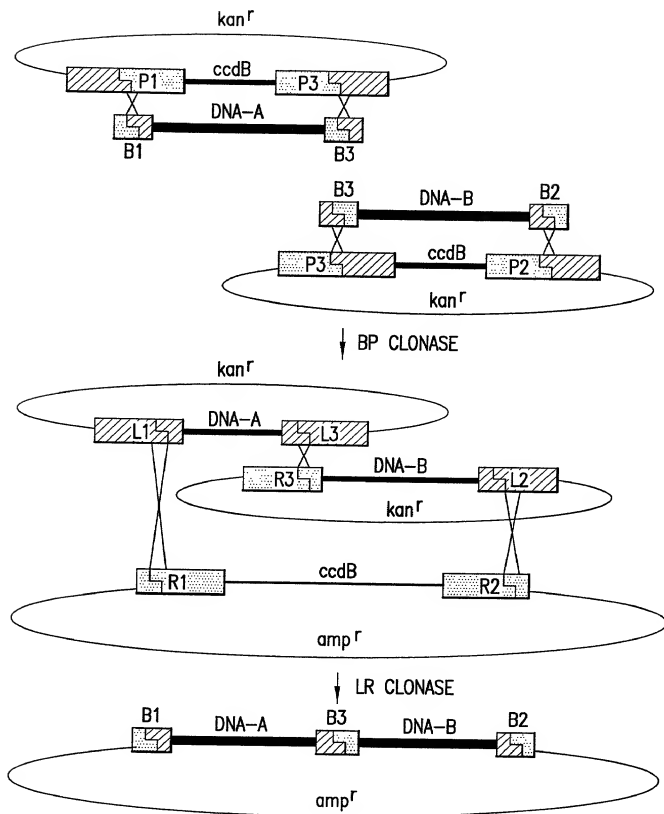


FIG.4

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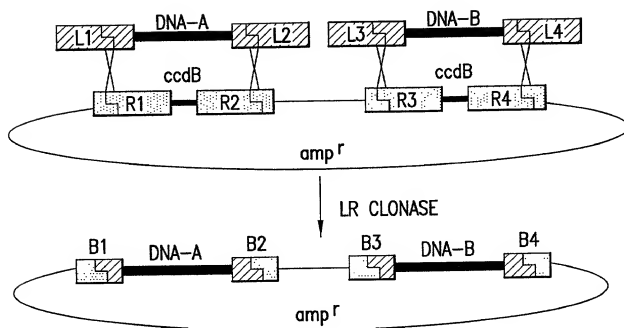


FIG.6

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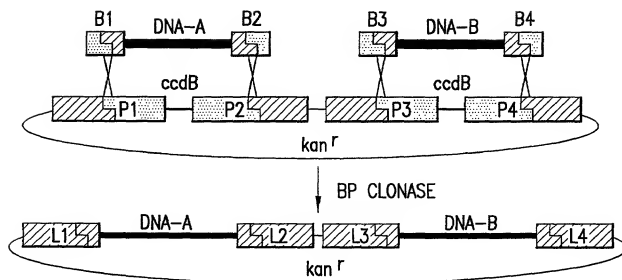


FIG. 7

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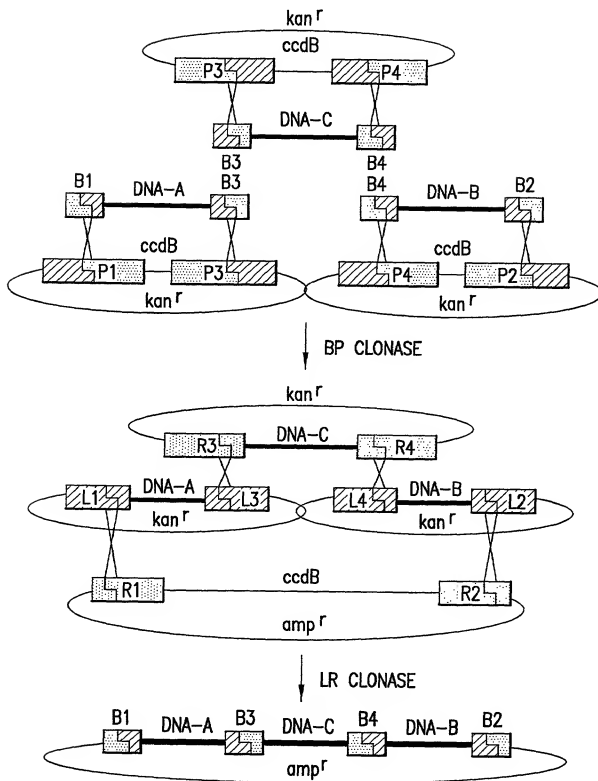


FIG.8

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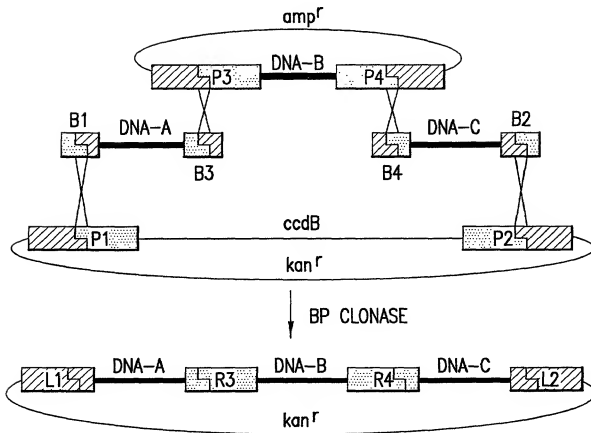


FIG.9

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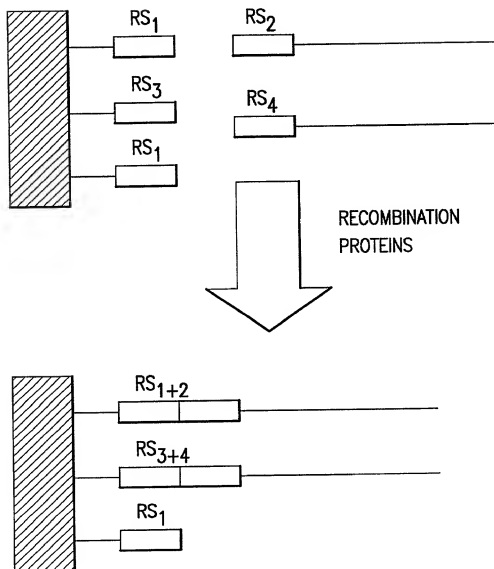


FIG.10

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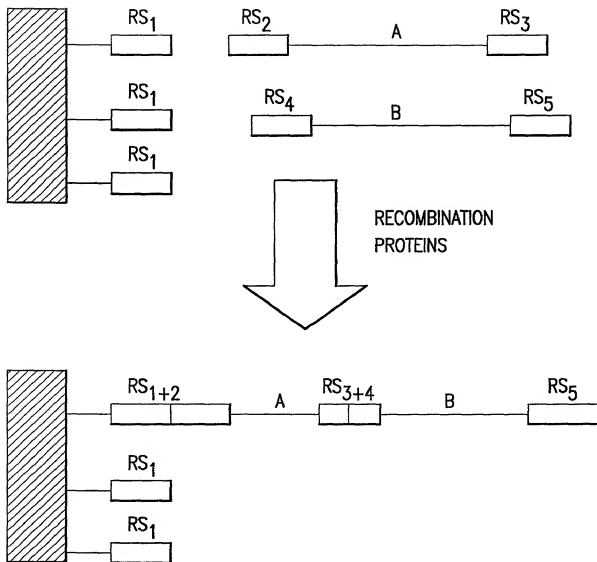


FIG.11

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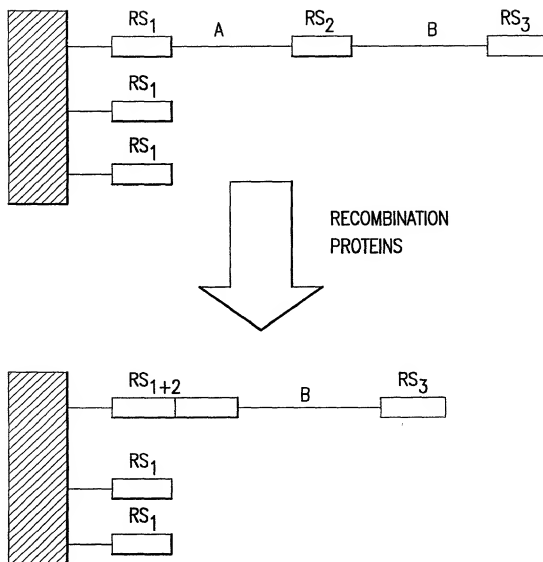


FIG.12

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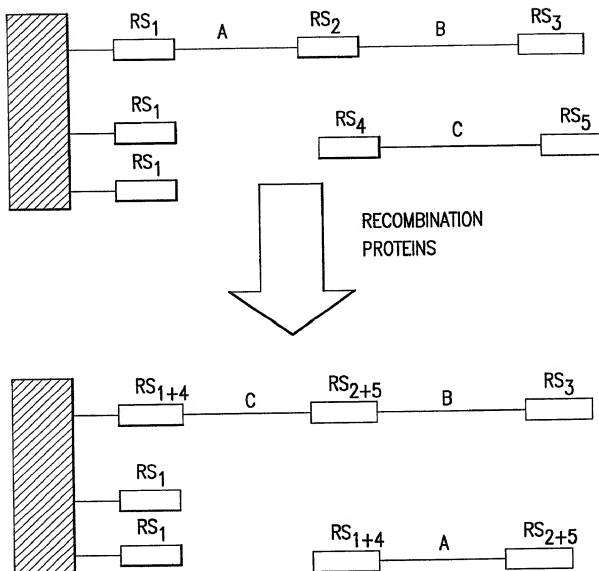


FIG.13

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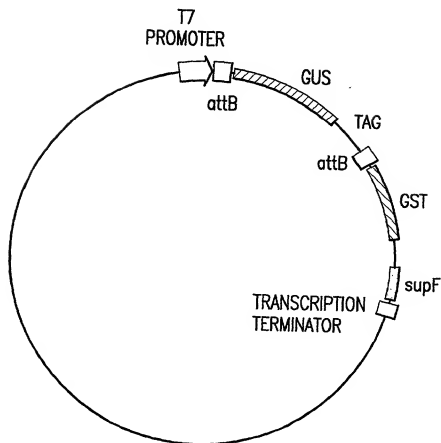


FIG.14A

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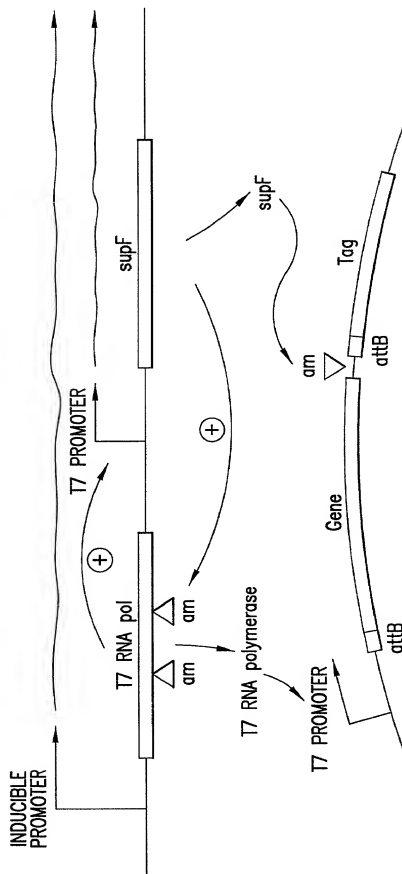


FIG.14B

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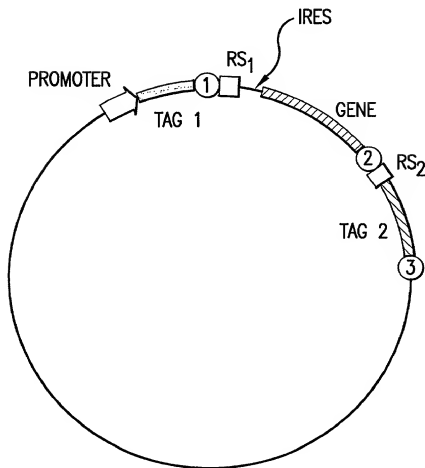


FIG.15

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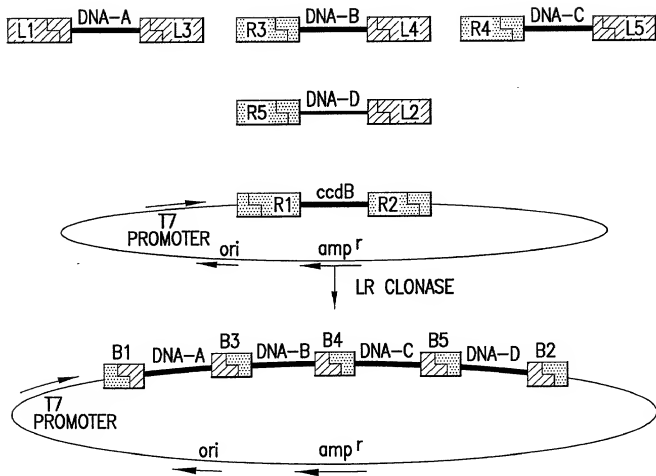


FIG.16

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CLONING LIGHT

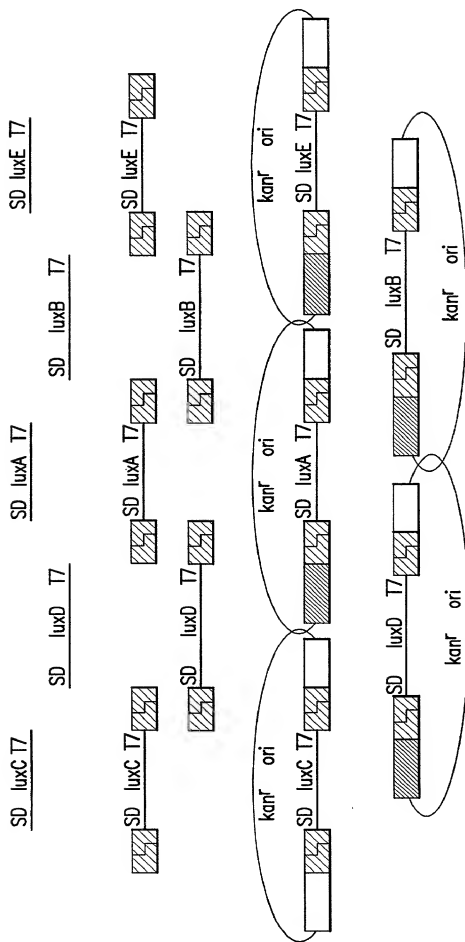


FIG. 17A

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CLOWING LIGHT

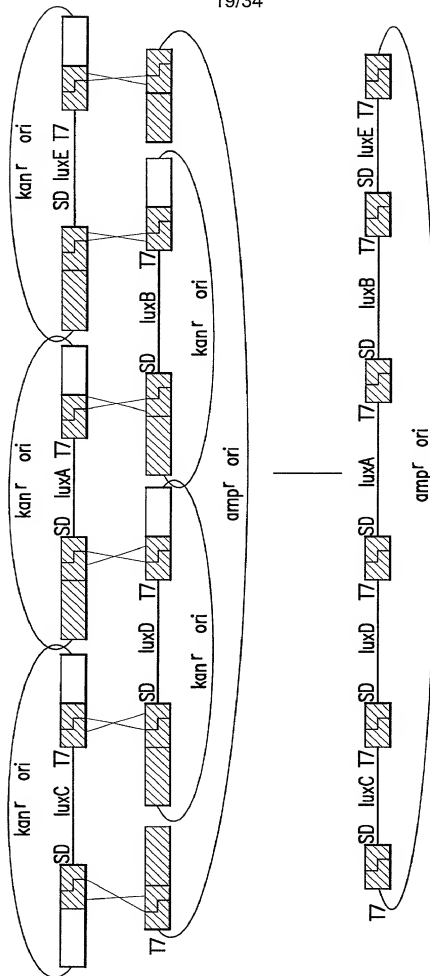


FIG. 17B

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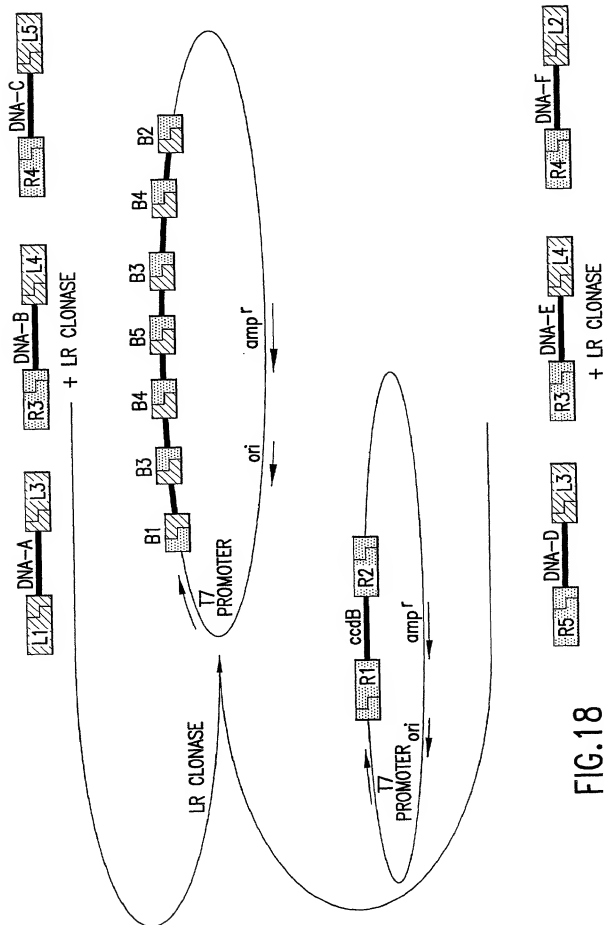


FIG.18

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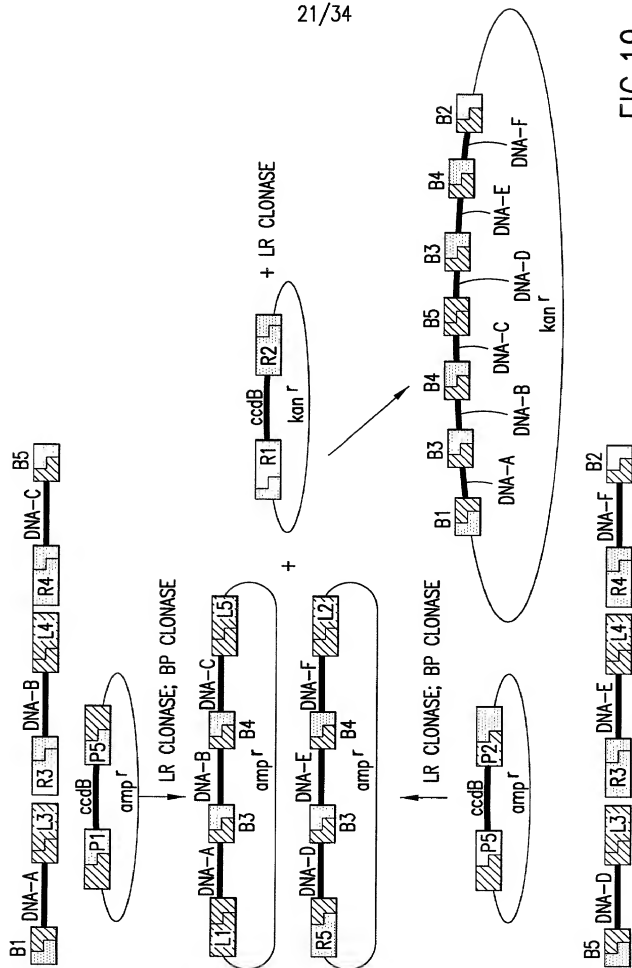


FIG.19

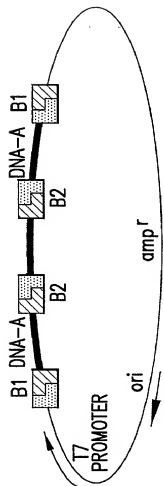


FIG. 20A

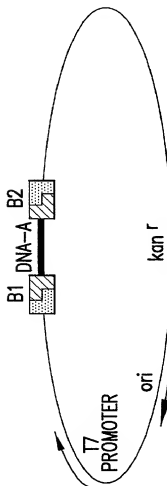


FIG. 20B

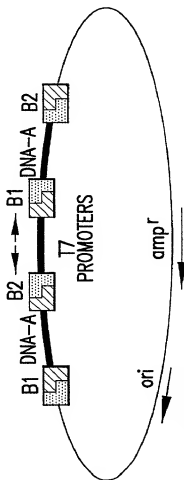


FIG. 20C

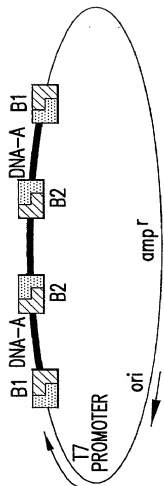


FIG. 20D

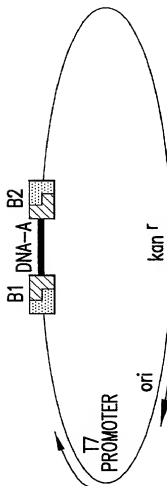


FIG. 20E

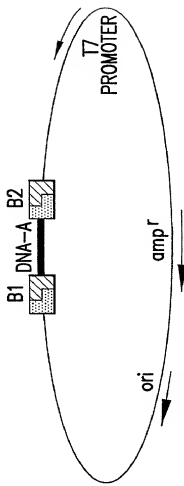


FIG. 20F

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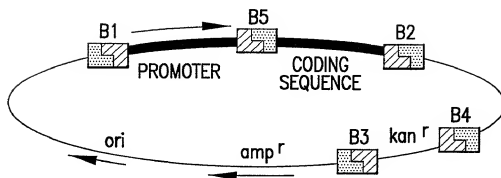


FIG. 21A

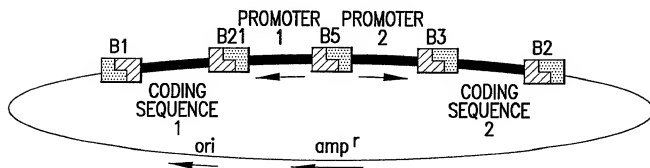


FIG. 21B

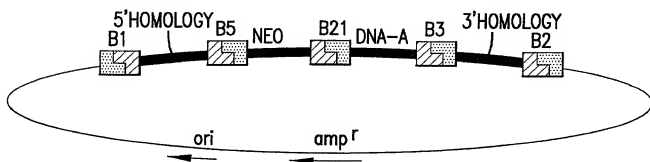


FIG. 21C

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CONSTRUCTING GENE TARGETING VECTORS

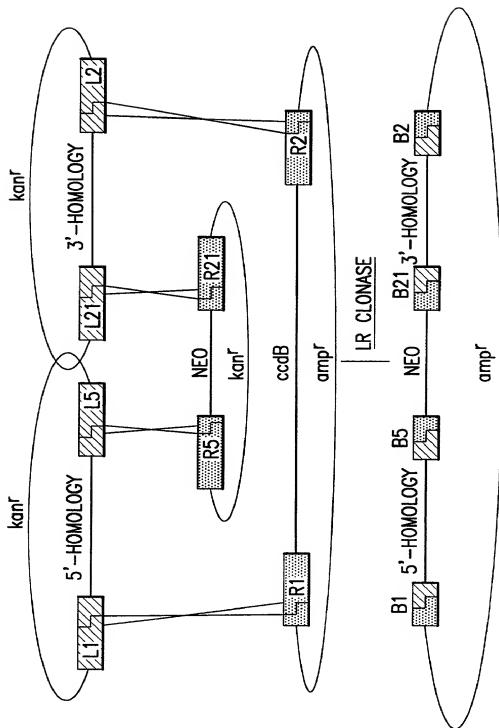


FIG. 22A

The diagram illustrates the three-step process of BAC cloning:

- BP CLONASE:** This step involves the initial cloning of DNA fragments into a BAC vector. The top part shows two DNA fragments, each with a *kan^r* resistance gene and a *ccdB* gene. The left fragment has P1 and P5 sites, and the right fragment has P21 and P2 sites. Below, the resulting BAC clones are shown: B1 (with 5'-HOMOLOGY) and B5 (with 3'-HOMOLOGY) from the left fragment, and B21 (with 5'-HOMOLOGY) and B2 (with 3'-HOMOLOGY) from the right fragment.
- Neo Deletion:** This step involves the deletion of the *NEO* (Neomycin resistance) gene. The middle part shows the BAC clones with the *NEO* gene flanked by *amp^r* (Ampicillin resistance) genes. The bottom part shows the resulting BAC clones after the *NEO* gene has been deleted, leaving the *amp^r* genes.
- LR CLONASE:** This step involves the final cloning of the DNA fragments into a BAC vector. The bottom part shows the final BAC clones: B1 (with 5'-HOMOLOGY) and B5 (with 3'-HOMOLOGY) from the left fragment, and B21 (with 5'-HOMOLOGY) and B2 (with 3'-HOMOLOGY) from the right fragment.

FIG. 22B

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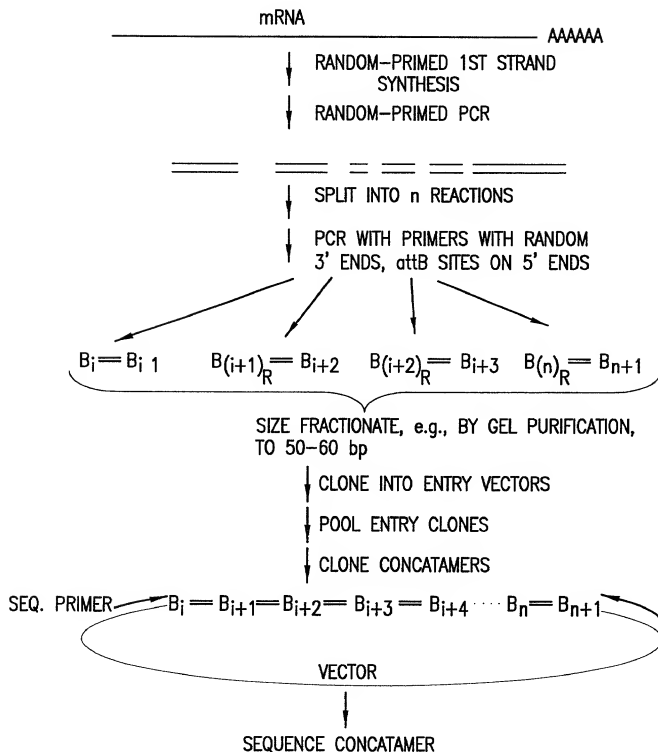


FIG. 23

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attB0 AGCCTGCTTTTTTTATACTAAGTTGAGC (SEQ ID NO:1)
 TCGGACGAAAAAATATGATTGAACTCG

attP0 GTTCAGCTTTTTTTATACTAAGTTGGCA (SEQ ID NO:2)
 CAAGTCGAAAAAATATGATTCAACCGT

attL0 AGCCTGCTTTTTTTATACTAAGTTGGCA (SEQ ID NO:3)
 TCGGACGAAAAAATATGATTCAACCGT

attR0 GTTCAGCTTTTTTTATACTAAGTTGAGC (SEQ ID NO:4)
 CAAGTCGAAAAAATATGATTGAACTCG

attB1 AGCCTGCTTTTTTTGTACAAAGTTGT (SEQ ID NO:5)
 TCGGACGAAAAAATATGTTTGAACA

attP1 GTTCAGCTTTTTTTGTACAAAGTTGGCA (SEQ ID NO:6)
 CAAGTCGAAAAAATATGTTTCAACCGT

attL1 AGCCTGCTTTTTTTGTACAAAGTTGGCA (SEQ ID NO:7)
 TCGGACGAAAAAATATGTTTCAACCGT

attR1 GTTCAGCTTTTTTTGTACAAAGTTGT (SEQ ID NO:8)
 CAAGTCGAAAAAATATGTTTGAACA

attB2 ACCCAGCTTTTCTTGTACAAAGTTGGT (SEQ ID NO:9)
 TGGGTCGAAAAGAAATATGTTTCAACA

attP2 GTTCAGCTTTTCTTGTACAAAGTTGGCA (SEQ ID NO:10)
 CAAGTCGAAAAGAAATATGTTTCAACCGT

attL2 ACCCAGCTTTTCTTGTACAAAGTTGGCA (SEQ ID NO:11)
 TGGGTCGAAAAGAAATATGTTTCAACCGT

attR2 GTTCAGCTTTTCTTGTACAAAGTTGGT (SEQ ID NO:12)
 CAAGTCGAAAAGAAATATGTTTGAACA

attB5 CAACTTTTATTATACAAAGTTGT (SEQ ID NO:13)
 GTTGAATAATATGTTTCAACA

attP5 GTTCAACTTTTATTATACAAAGTTGGCA (SEQ ID NO:14)
 CAAGTTGAATAATATGTTTCAACCGT

FIG.24A

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attL5 CAACTTTTATTATACAAAGTTGGCA (SEQ ID NO:15)
 GTTGAAATAATATGTTTCAACCGT

attR5 GTTCAACTTTTATTATACAAAGTTGT (SEQ ID NO:16)
 CAAGTTGAAATAATATGTTTCAACA

attB11 CAACTTTTTCTATACAAAGTTGT (SEQ ID NO:17)
 GTTGAAAAGATATGTTTCAACA

attP11 GTTCAACTTTTTCTATACAAAGTTGGCA (SEQ ID NO:18)
 CAAGTTGAAAAGATATGTTTCAACCGT

attL11 CAACTTTTTCTATACAAAGTTGGCA (SEQ ID NO:19)
 GTTGAAAAGATATGTTTCAACCGT

attR11 GTTCAACTTTTTCTATACAAAGTTGT (SEQ ID NO:20)
 CAAGTTGAAAAGATATGTTTCAACA

attB17 CAACTTTTTGTATACAAAGTTGT (SEQ ID NO:21)
 GTTGAAAACATATGTTTCAACA

attP17 GTTCAACTTTTTGTATACAAAGTTGGCA (SEQ ID NO:22)
 CAAGTTGAAAACATATGTTTCAACCGT

attL17 CAACTTTTTGTATACAAAGTTGGCA (SEQ ID NO:23)
 GTTGAAAACATATGTTTCAACCGT

attR17 GTTCAACTTTTTGTATACAAAGTTGT (SEQ ID NO:24)
 CAAGTTGAAAACATATGTTTCAACA

attB19 CAACTTTTTTCGTACAAAGTTGT (SEQ ID NO:25)
 GTTGAAAAAGCATGTTTCAACA

attP19 GTTCAACTTTTTTCGTACAAAGTTGGCA (SEQ ID NO:26)
 CAAGTTGAAAAAGCATGTTTCAACCGT

attL19 CAACTTTTTTCGTACAAAGTTGGCA (SEQ ID NO:27)
 GTTGAAAAAGCATGTTTCAACCGT

attR19 GTTCAACTTTTTTCGTACAAAGTTGT (SEQ ID NO:28)
 CAAGTTGAAAAAGCATGTTTCAACA

FIG.24B

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attB20 CAACTTTTTTGGTACAAAGTTGT (SEQ ID NO:29)
GTTGAAAAACCATGTTTCAACA

attP20 GTTCAACTTTTTTGGTACAAAGTTGGCA (SEQ ID NO:30)
CAAGTTGAAAAACCATGTTTCAACCGT

attL20 CAACTTTTTTGGTACAAAGTTGGCA (SEQ ID NO:31)
GTTGAAAAACCATGTTTCAACCGT

attR20 GTTCAACTTTTTTGGTACAAAGTTGT (SEQ ID NO:32)
CAAGTTGAAAAACCATGTTTCAACA

attB21 CAACTTTTTTAATACAAAGTTGT (SEQ ID NO:33)
GTTGAAAAATTATGTTTCAACA

attP21 GTTCAACTTTTTTAATACAAAGTTGGCA (SEQ ID NO:34)
CAAGTTGAAAAATTATGTTTCAACCGT

attL21 CAACTTTTTTAATACAAAGTTGGCA (SEQ ID NO:35)
GTTGAAAAATTATGTTTCAACCGT

attR21 GTTCAACTTTTTTAATACAAAGTTGT (SEQ ID NO:36)
CAAGTTGAAAAATTATGTTTCAACA

FIG.24C

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VECTOR ASSEMBLY USING MODULAR VECTOR ELEMENT ENTRY CLONES

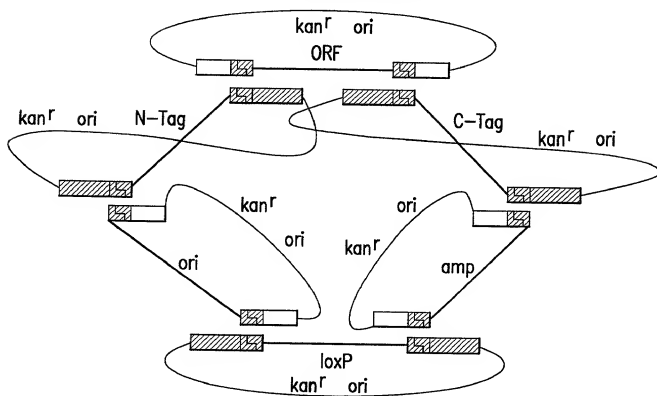


FIG. 25A

VECTOR ASSEMBLY USING MODULAR VECTOR ELEMENT ENTRY CLONES

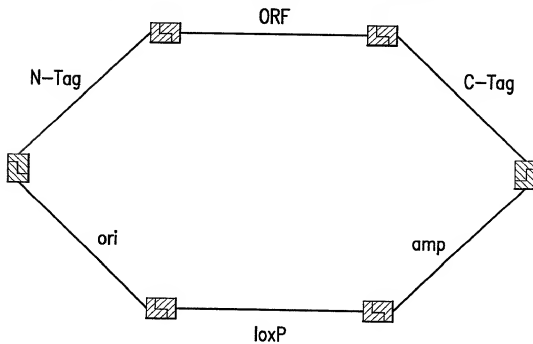


FIG. 25B

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CONSTRUCTION OF attP PLASMIDS

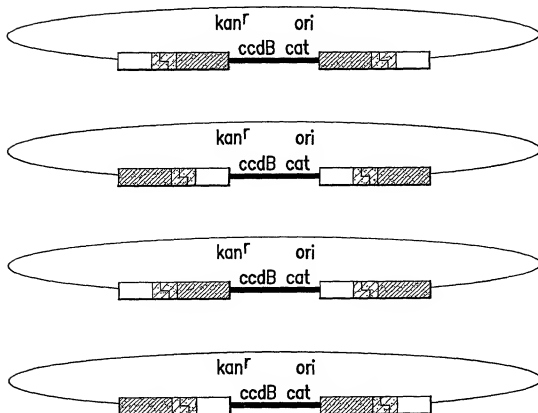


FIG.26A

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CONSTRUCTION OF attP PLASMIDS

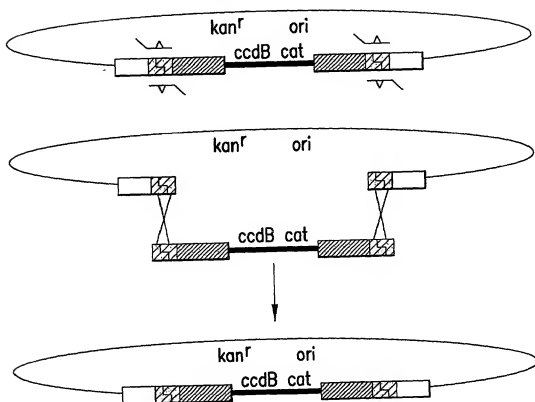


FIG.26B

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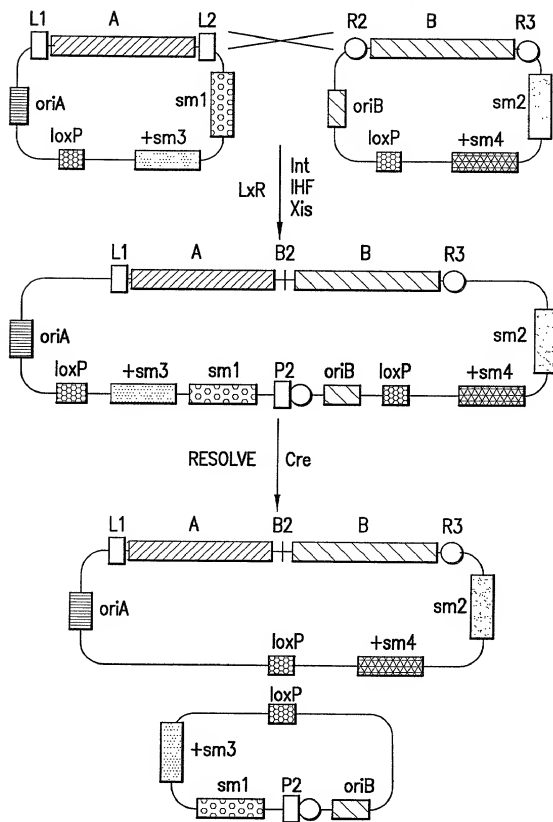


FIG.27A

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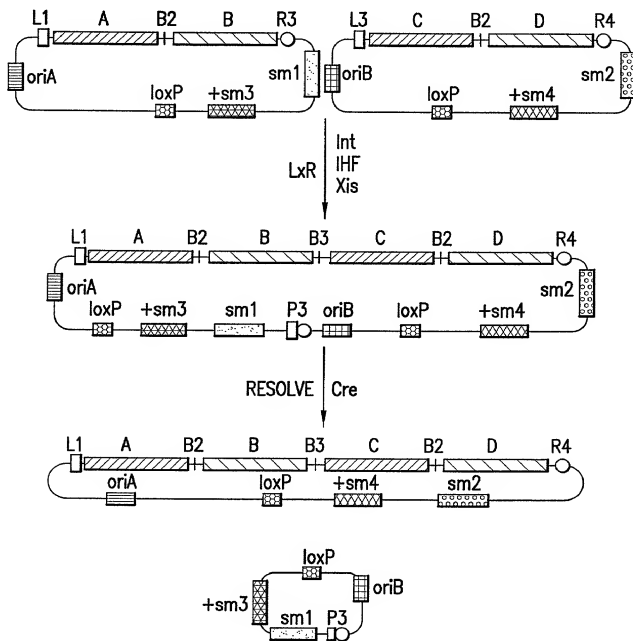


FIG.27B